

Table of Contents

1	INTRODUCTION.....	1
1.1	Overview.....	3
1.2	Background.....	3
1.2.1	<i>The Suborbital Space Environment</i>	3
1.2.2	<i>Suborbital vs. Orbital Expendable Launch Vehicles</i>	4
1.2.3	<i>Suborbital vs. Orbital Reusable Launch Vehicles</i>	10
2	CURRENT ADDRESSABLE SUBORBITAL MARKETS.....	13
2.1	National Missile Defense Tests.....	15
2.2	Sounding Rocket Research Activities.....	16
2.2.1	<i>High Altitude and Astronomical Research</i>	16
2.2.2	<i>Microgravity Research</i>	17
3	EMERGING SUBORBITAL MARKETS	21
3.1	Military Surveillance and Commercial/Civil Earth Imagery.....	23
3.2	Fast Package Delivery.....	24
3.3	High Speed Passenger Transportation.....	25
3.4	Media, Advertising and Sponsorship.....	25
3.4.1	<i>Film and Television</i>	25
3.4.2	<i>Product Endorsement</i>	26
3.4.3	<i>Advertising, Branding, and Sponsorship</i>	26
3.5	Space Tourism.....	27
3.6	Space Diving.....	27
4	SUBORBITAL RLVS IN DEVELOPMENT.....	29
4.1	Overview and Approach.....	31
4.2	Discussion of Concepts.....	31
5	SUMMARY.....	39
6	REFERENCES.....	43
6.1	Introduction.....	45
6.2	Current Addressable Suborbital Markets.....	45
6.3	Emerging Suborbital Markets.....	45
	APPENDIX A.1 Domestic Suborbital RLVs in Development	47
	APPENDIX A.2 Domestic Suborbital RLVs Under Study.....	87
	APPENDIX A.3 International Suborbital RLVs in Development.....	93